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Characterization of acute acral skin lesions in nonhospitalized patients: A case series of 132 patients during the COVID-19 outbreak

To the Editor: The coronavirus disease 2019 (COVID-19) has been associated with several skin manifestations, including widespread urticaria, erythematous rash, and varicella-like exanthem.[1,2] Ischemic and ecchymotic acral lesions have also been described in patients with severe forms of COVID-19 as a manifestation of clotting disorders.[3] Coincident with the COVID-19 pandemic, similar acral lesions have being described in healthy young patients.[4] However, the clinical implication and relation to COVID-19 remains unclear.

We designed a retrospective study of general consultations from March 5 to April 15, 2020, in Spain. Inclusion criteria were the presence of skin lesions as the reason for the consultation, collection of clinical photographs, and informed consent. Exclusion criteria included nonacral skin lesions and lack of clinical data.

From 346 initial patients, 132 fulfilled selected criteria. Patients' data are summarized in Table I. Mean age was 19.9 years (range, 1-56 years). Of the 132 patients, 54 (40.9%) had close contact with a patient with confirmed COVID-19, 28 (21.2%) had close contact with a health worker, and 19 (14.4%) were clinically diagnosed with COVID-19. None of the patients had COVID-19 pneumonia or specific medication. COVID-19 symptoms began in 16 patients before the skin lesions, with a mean latency time of 9.2 days (range, 3-30 days), and skin lesions in 3 patients started at the same time. Mean duration of the skin lesions was 8.7 days (range, 2-24 days).

In 11 patients, a real-time reverse-transcription polymerase chain reaction test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was performed from a nasopharyngeal swab, after the onset of skin lesions. The test result was positive in 2 patients (18.1%). Serologic assays were not performed.

After the clinical images were evaluated, we could describe 2 different patterns of acute acral lesions, which can overlap (Table I). The chilblain-like pattern, which was present in 95 patients (72.0%), is characterized by red-to-violet macules, plaques, and nodules, usually at the distal aspects of toes and fingers (Fig 1, *A-C*). The erythema multiforme-like pattern was present in 37 patients (28.0%) and is characterized by rounded erythematous macules and vesicles that tend to coalesce. Compared with classical erythema multiforme, individual lesions are smaller (<1 cm diameter). It does not usually present typical targetoid lesions and tends to be less widespread (Fig 2, *A-C*). Only 2

Table I. Clinical characteristics of patients with acroischemic lesions

	Clinical pattern of acral lesions			
Characteristic*	Chilblain-like (n = 95 [72.0])	Erythema multiforme-like (n = 37 [28.0])	Total (N = 132)	*P* value†
Age, y	23.4 (2-56)	12.2 (1-29)	19.9 (1-56)	<.001
Sex				.415
Male	49 (51.6)	22 (59.4)	71 (53.8)	
Female	46 (48.4)	15 (40.6)	61 (46.2)	
COVID-19 symptoms	19 (25.0)	6 (16.2)	18 (13.6)	.618
Location of skin lesions				
Hands	33 (34.7)	8 (21.6)	41 (31.1)	.144
Feet	73 (76.8)	35 (94.6)	108 (81.8)	.018
Distribution of skin lesions				
Digital	87 (91.6)	33 (89.2)	120 (90.9)	.738‡
Dorsal	23 (24.2)	12 (32.4)	35 (26.5)	.336
Ventral	3 (3.2)	15 (40.6)	18 (13.6)	<.001
Heels/wrists	12 (12.6)	10 (27.0)	22 (16.7)	.046
Other	0	2 (5.4)	2 (1.5)	.077‡
Duration of skin lesions, d	9.2 (3-24)	7.4 (2-15)	8.7 (2-24)	.019

*Data are presented as the mean (range) or number (%).
†To compare a qualitative variable with a quantitative one, the Student *t* parametric test was used after assenting normality. To compare two qualitative variables, the χ^2 test or Fisher exact test were used.
‡Fischer's exact test was used.

Fig 1. Chilblain-like acral lesions. **A**, Ecchymotic plaques and nodules with a bruising appearance over the distal aspects of toes. **B**, Confluent erythematous-violaceous diffuse plaques sparing some toes and the dorsal feet. **C**, Close-up view of the lateral and plantar aspects of toes.

Fig 2. Erythema multiforme-like acral lesions. **A**, Erosion and crust formation over dusky plaques in the dorsal aspects of digits. A Koebner phenomenon is present over the hallux valgus. **B**, Circular lesions, some of them with a targetoid appearance, over the plantar surface. **C**, Confluent vesicles over a dusky area.

of 37 patients (5.4%) also presented lesions at other sites of the body, including elbows, knees, and ears.

Blood coagulation is altered in COVID-19 patients. Elevated levels of D-dimer and prothrombin time are associated with a poor prognosis.[5] True ischemic acral lesions have been described in severely ill patients with COVID-19, manifesting a disseminated intravascular coagulation. There is an increasing concern about the clinical implications of acute acral lesions in asymptomatic or mildly symptomatic patients. The patients in this study did not develop COVID-19 pneumonia or any other complication. The latency time between COVID-19 symptoms and skin manifestations and the low positive rate for nasopharyngeal swabs suggest that it represents a late manifestation of SARS-CoV-2 infection. Whether the lesions represent a coagulation disorder or a hypersensitivity reaction is yet to be known.

The authors would like to thank all the health workers that have been relentlessly fighting against COVID-19 in Spain. Special thanks for their help in data collection to Dr Leticia Alonso-Castro, Adrian Alegre-Sanchez, Adrian Diago-Irache, Cristina Garcia-Millan, Bibiana Perez-Garcia, Montserrat Fernandez-Guarino, Elena de las Heras-Alonso, Sandra Chamorro-Tojeiro, Johannes Haemmerle, Carlos Alberto Yépez-Tovar, Paula Alonso-Barreiros, Asuncion Ballester, Jose Jesus Larreina, Cristina Pindado-Ortega, Gonzalo Segurado-Miravalles, and Pablo Miguel Fonda-Pascual.

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Funding sources: None.

Conflicts of interest: None disclosed.

IRB approval status: The Institutional Review Board approved this study.

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https://doi.org/10.1016/j.jaad.2020.04.093